

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MISSOURI
EASTERN DIVISION**

MICHAEL BAVLSIK, M.D., and)
KATHLEEN SKELLY,)
)
Plaintiffs,)
)
v.)
)
GENERAL MOTORS LLC,)
)
Defendant.)
)
No. 4:13 CV 509 DDN

MEMORANDUM AND ORDER

This action is before the court on the motion of plaintiffs to exclude the expert testimony of Jeya Padmanaban (Doc. 65) and the motions of defendant to exclude the expert testimony of Joseph Burton, M.D., (Doc. 71) and Larry Sicher (Doc. 72).

BACKGROUND

On March 18, 2013, plaintiffs Michael Bavlsik, M.D., and Kathleen Skelly, citizens of Missouri, filed this action against defendant General Motors, LLC, a Delaware limited liability company with its primary office in Detroit, following a motor vehicle accident on July 7, 2012 outside Detroit Lakes, Minnesota. (Doc. 1.) Plaintiffs allege the following. Plaintiff Bavlsik was driving a 2003 GMC Savana when it struck a 2004 Chevy Silverado towing a boat. (*Id.* ¶¶ at 8–9.) Plaintiff Bavlsik’s vehicle rolled over causing the interior compartment to buckle and the roof to cave into the passenger compartment. (*Id.* at ¶¶ 9–10.) Plaintiff alleges that the roof’s collapse caused Dr. Bavlsik’s serious and permanent injuries. (*Id.* at ¶¶ 20–11.)

Plaintiffs allege that the vehicle was defective in its design and manufacture of both the roof and the seat belt. Therefore, the vehicle was unfit, unsafe, and unreasonably

dangerous when used as intended. (Id. at ¶ 15.) Plaintiffs allege that there were alternative feasible designs available at the time of manufacture that would have prevented this type of roof collapse as well as excessive driver movement and, thus, the resulting injuries. (Id. at ¶¶ 19–20.)

Plaintiff Bavlisk alleges claims for strict product liability (Count 1) and negligence (Count 2). (Id. at ¶¶ 22–49.) Plaintiff Skelly alleges a claim for loss of consortium with her spouse, plaintiff Bavlisk (Count 3). (Id. at ¶¶ 50–52.)

II. ADMITTING EXPERT TESTIMONY

In diversity cases, federal law governs the admissibility of expert testimony. Unrein v. Timesavers, Inc., 394 F.3d 1008, 1011 (8th Cir. 2005). To be admissible, the proponent of the evidence must prove that the expert testimony is both reliable and helpful, and that the expert is qualified to be a witness. Fed. R. Evid. 104(a); Fed. R. Evid. 702 advisory committee's note. This showing must be made by a preponderance of the evidence. Bourjaily v. United States, 483 U.S. 171, 176 (1987); Lauzon v. Senco Products, Inc., 270 F.3d 681, 686 (8th Cir. 2001). Rule 702 of the Federal Rules of Evidence guides the court in determining the admissibility of expert testimony.

Under Rule 702, the court must first find that scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue. Fed. R. Evid. 702. If the court makes this finding, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify in the form of an opinion, provided (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case. Id.; United States v. White Horse, 316 F.3d 769, 775 (8th Cir. 2003). An expert must explain how he or she arrived at his or her conclusions; the trial court may not simply take the expert's word for it. Fed. R. Evid. 702 advisory committee's note; Thomas v. City of Chattanooga, 398 F.3d 426, 432 (6th Cir. 2005).

Rule 702 incorporates the rulings of the Supreme Court's decisions in Kumho Tire Co., Ltd. v. Carmichael, 526 U.S. 137 (1999), and Daubert v. Merrell Dow Pharmas., Inc., 509 U.S. 579 (1993). Fed. R. Evid. 702 advisory committee's note. In those cases, the Supreme Court charged trial judges with the responsibility of acting as gatekeepers to exclude unreliable expert testimony. Kumho Tire, 523 U.S. at 141; Daubert, 509 U.S. at 597. In exercising this gatekeeping responsibility, the trial judge must follow the standards of Rule 702, but can also consider the four factors found in Daubert.¹ Fed. R. Evid. 702 advisory committee's note; Kumho Tire, 526 U.S. at 140–41 (“[T]he test of reliability is ‘flexible,’ and Daubert’s list of specific factors neither necessarily nor exclusively applies to all experts or in every case.”) Rule 702 reflects an attempt to liberalize the rules governing the admission of expert testimony, and the rule remains one of admissibility rather than exclusion. Shuck v. CNH Am., LLC, 498 F.3d 868, 874 (8th Cir. 2007). If there is doubt “whether an expert’s testimony will be useful should generally be resolved in favor of admissibility.” Clark v. Heidrick, 150 F.3d 912, 915 (8th Cir. 1998). Finally, as with all evidence, an expert’s testimony’s probative value must not be substantially outweighed by a danger of unfair prejudice, confusing the issues, misleading the jury, undue delay, wasting time, or needlessly presenting cumulative evidence. Fed. R. Evid. 403.

III. MOTION TO EXCLUDE THE OPINIONS OF JEYA PADMANABAN

Plaintiffs move to exclude all sixteen of Ms. Padmanaban’s expert opinions.² (Doc. 66 at 5–6.)

¹ In Daubert, the Supreme Court listed four non-exclusive factors for assessing the reliability of scientific expert testimony: (1) whether the expert’s theory or technique can be or has been tested; (2) whether the theory has been subjected to peer review and publication; (3) whether the technique has a known rate of error or standards controlling its operation; and, (4) whether the theory enjoys general acceptance within the relevant scientific community. Daubert, 509 U.S. at 592–94.

² The opinions listed are summaries of Ms. Padmanaban’s opinions. (See Doc. 66-5, 66-6.) Defendant summarizes Ms. Padmanaban’s opinions as covering four distinct areas:

1. Safety belts are the most effective crashworthiness countermeasure to reduce fatalities in rollovers. (Doc. 66-5 at 5.)
2. NASS/CDS data show that for belted drivers in vans, fewer than 1% sustain serious head/face/neck injuries in rollover crashes. These rates are lower than the serious head/face/neck rates for belted drivers in passenger car rollovers. (Id.)
3. Police-Reported State Accident data from 14 states [AL, FL, GA, ID, IL, MD, MO, NE, NC, NY, OK, PA, TN, and WI] were examined to compare the serious injury rates (using the "KABCO police-reported scale) in rollover crashes for the subject GMC Savana Group and other vans. The data showed that the serious injury rate for belted drivers in the GMC Savana Group is low and is comparable to the serious injury rates for other vans. (Id.)
4. The serious injury rate and severe injury rate in rollover crashes for belted drivers in the GMC Savana group is comparable to the rates for belted drivers in the Volvo XC-90s and Subaru Foresters. (Id. at 6.)
5. The data show that, for the subject GMC Savana group, 1.6% of all crashes result in rollovers. (Id.)
6. Field data from NASS/CDS show that a belted occupant in a non-arrested rollover with an impact with another vehicle is about three

1. Ms. Padmanaban will offer opinions on the relationship between vehicle roof strength and likelihood of injury to belted occupants using field data;
2. Ms. Padmanaban will address the injury risk associated with conventional belts versus All Belts to Seats (ABTS) systems using field data on rollover crashes;
3. Ms. Padmanaban will address the safety record of the subject GMC Savana group vehicles involved in rollover crashes using field data;
4. And finally, Ms. Padmanaban will address key statistical studies heavily relied upon by Plaintiffs' engineering experts Burton and Batzer to address rollover injuries using field data.

(Doc. 76 at 5.)

times more likely to sustain serious head/face/neck injury than in a non-arrested rollover with a ground-only impact. (Id.)

7. NASS/CDS data also show that the serious injury rates from belted drivers in rollover crashes are comparable for vehicles with a roof strength to weight ratio than or equal to 4.0 for vehicles with a roof strength to weight ratio less than 4.0 (Id.)
8. Several factors, including crash severity factors, influence injury outcome in rollovers. This demonstrates that rollovers are complex events and that a single parameter (such as roof strength) cannot explain the injury potential for occupants. (Id.)
9. There is no relationship between roof SWR and likelihood of fatality or serious injury for belted or unbelted occupants in rollovers. (Id. at 7.)
10. When important confounding factors are accounted for (belt use, ejection, alcohol, rural/urban, driver age), roof strength to weight ratio is not a statistically significant predictor of likelihood of fatality or serious injury in single-vehicle rollovers. (Id. at 8.)
11. NASS/CDS data show that there is no relationship between roof strength to weight ratio and roof deformation at position. (Id.)
12. Five percent of seriously injured occupants in rollovers are belted front seat occupants with serious head, face, and neck injury resulting from roof contact where roof deformation is coded at the seating position. Even for these, testing shows that the roof contact occurs before there is any significant roof deformation. (Id.)
13. Rollovers are complex events and that a single parameter (such as roof performance or pretensioners) cannot explain the injury potential for occupants. (Id.)
14. Frontal impacts followed by a rollover are extremely rare. For light vehicles, fewer than, 0.5% of all multiple vehicle tow-away crashes are frontal impacts followed by a rollover. (Doc. 66-6 at 3.)
15. There is no statistically significant difference between fatality or serious injury rates for belted drivers in vehicles with seat integrated

belts versus conventional belts. Both seat integrated belts and conventional belts reduce fatalities and injuries in rollovers. (Id. at 4.)

16. The presence of Seat Integrated Restraint Systems is not a statistically significant predictor influencing the odds of fatality or serious injury to belted drivers in rollover crashes. (Id.)

Plaintiffs argue that Ms. Padmanaban's opinions are irrelevant and unreliable. They assert that Ms. Padmanaban's opinions, and therefore her testimony, are based on accidents dissimilar to the one at hand. Also, plaintiffs argue that Ms. Padmanaban's sample size is too small to be meaningful and what little data she has was manipulated and cherry-picked in order to come to preconceived conclusions. Finally, plaintiffs argue Ms. Padmanaban's testimony will mislead and confuse the jury, as well as unduly delay the trial. (Doc. 66 at 5–6.)

Defendant counters that the data used by Ms. Padmanaban is the same type used by plaintiffs' own experts. Her testimony will be used to directly rebut the evidence and opinions to be offered by plaintiffs' experts. Finally, her opinions are premised on well-accepted and reliable principles, processes, data, and that the sample size is adequate. (Doc. 76.)

A. Assistance to the Jury & Ms. Padmanaban's Qualifications

First, in order for a court to allow scientific or technical testimony the court must find that the jury needs this specialized testimony to determine an ultimate issue of the case. Lauzon v. Senco Products, Inc., 270 F.3d 681, 686 (8th Cir. 2001). Experts in the field of statistics are often used in product liability cases in order to compare and contrast the safety of the product in question with similar products on the market. Jaramillo v. Ford Motor, Co., 116 F. App'x 76, 78–79 (9th Cir. 2004) (rollover statistics); Glastetter v. Novartis Pharm. Corp., 252 F.3d 986 (8th Cir. 2001) (per curiam) (statistics linking stroke and medication); Morales v. Am. Honda Motor Co., Inc. 151 F.3d 500 (6th Cir.

1998) (motorcycle-related accident statistics). Therefore, the court finds that an expert in statistics could be helpful to the jury in the present case.

If the court determines that a topic would be aided by an expert, it must ensure the expert is qualified to testify. Fed. R. Evid. 702. Qualification can be done through knowledge, skill, experience, training, or education. Id. There appears to be no challenge to Ms. Padmanaban's qualifications as a statistician. She has a Bachelor's degree in Science from India and a Master's degree in Science in Operations Research and Statistics from the George Washington University. She is currently the president of her research company, JP Research, Inc. Prior to this she was a Managing Scientist, a Senior Operation Research Analyst, and a Statistical Consultant at various companies as well as Princeton University. (Doc. 76-1 at 3.) She is a member of several professional organizations for statisticians and automotive safety. (Id. at 4.) Ms. Padmanaban has also been extensively published regarding the subject of motor vehicle safety. (Id. at 4–11.)

B. Reliable and Trustworthy Evidence

The evidence to be presented by a qualified expert must be found reliable and trustworthy by the court. Fed. R. Evid. 702; Kumho Tire, 523 U.S. at 141; White Horse, 316 F.3d at 775. This reliability is based on the application of sufficient facts and data, which were gathered using reliable principles and methods, to the case at bar. Fed. R. Evid. 702.

1. Reliable Principles and Methods

The data used must be gathered using reliable principles and methods. Id. A court may assess the reliability of the expert's methodology using four nonexclusive factors: “(1) whether the theory or technique ‘can be (and has been) tested;’ (2) ‘whether the theory or technique has been subjected to the peer review and publication’ (3) ‘the

known or potential rate of error'; (4) whether the theory has been generally accepted." Shuck, 498 F.3d at 874 (quoting Daubert, 509 U.S. at 593–94).

Ms. Padmanaban has used two different databases to gather her statistics: the National Automotive Sampling System Crashworthiness Data System (NASS/CDS) and the police reported state accident database ("state database"). (Doc. 76-1 at ¶¶ 11, 14.) The NASS/CDS is a database of crash descriptions and factors collected by the National Highway Transportation Safety Administration (NHTSA) from 24 different geographic sites nationwide. (Id. at ¶ 11.) The investigators include engineers, biomechanical experts, medical personnel, and statisticians from selected crashes around the country. (Id.) This database collects information on over 600 variables. (Doc. 76-10 at 9–10.) Each crash is weighted to represent all police reported crashes that were towed due to damage during each year. (Doc. 76-1 at ¶ 11.) The state database provides basic crash information from 29 participating states' law enforcement agencies. However, it does not have as many variables as the NASS/CDS as it is dependent on what state law enforcement agencies put into their databases. (Padmanaban Dep. 81:9–88:23, 91:24–100:9, 103:12–17, 115:23–117:6.) These two databases are used by NHTSA to conduct studies involving unsafe drivers, impact fire, pedestrians, and tire pressure, just to name a few. (Doc. 76-10 at 10.) The databases also assist NHTSA in conducting defect investigations, research rollover propensity, and the effectiveness of measures taken for occupant protection. (Id. at 10, 17.)

The databases have been tested and are in wide use by not only government agencies but also academic entities. The possibility of errors and small sample sizes are known and can be accounted for. This court finds the data and methods used by Ms. Padmanaban are reliable.

2. Sufficient Facts and Data

An expert must start her analysis with sufficient facts and data to make the subsequent conclusions reliable predictions regarding the case at hand. Tyler v. Univ. of

Ark. Bd. of Trs., 628 F.3d 980, 990 (8th Cir. 2011) (a sample of only six applicants too small to infer discrimination). There can be a flaw in the straight percentage comparisons when the sample size is too small. Mayor of City of Philadelphia v. Educ. Equality League, 415 U.S. 605, 621 (1974).

Plaintiff challenges Ms. Padmanaban's seventh opinion on the size of the data set, 25 accidents which she extrapolated out to 4,243. (Doc. 66 at 12.) Defendants argue that this size is adequate and is in the range of the industry standard. (Doc. 76 at 12.) This was explained in Ms. Padmanaban's deposition:

Q. And 25 is good enough sample size for you?

A. Twenty-five is adequate. As a matter of fact, NHTSA's final rulemaking is based on 31 cases of which only 12 of them they used, out of which only four of them are coded for 90 percent of the sampling weight. So their whole rulemaking benefit model was based on four data points. So if you ask me, 25 is good enough? Twenty-five is good enough for me, yes. To make this kind of comparison.

(Padmanaban Dep. 132:6–15.)

Although the data sample appears small, that is why NHTSA and Ms. Padmanaban places a weight on the crashes based on how prevalent they are across the country. Additionally, the small data size could be addressed by plaintiffs during cross-examination.

3. Application to this Case

In order to introduce comparative statistics in a strict liability claim the evidence's proponent must show that the other accidents "occurred under circumstances substantially similar to those surrounding the accident in the instant case." Lockley v. Deere & Co., 933 F.3d 1378, 1386 (8th Cir. 1991). This is because dissimilar accidents may "raise extraneous controversial issues, confuse the issues, and be more prejudicial than probative." Katzenmeier v. Blackpowder Prods., Inc., 682 F.3d 948 (8th Cir. 2010).

Plaintiffs have framed their argument as a crashworthiness case. Plaintiff Bavlsik, during a low-speed rollover of only $\frac{3}{4}$ of a revolution, was permanently injured by the roof of the GMC Savana. These injuries were caused assertedly because either (1) the GMC Savana's roof crushed into plaintiff Bavlsik's head because it was too weak to withstand an otherwise survivable accident; or, (2) the seat belt did not properly restrain Dr. Bavlsik, allowing his head to touch the roof during the rollover and caused a "diving injury". (Doc. 66 at 3.) Ms. Padmanaban's opinions can be grouped into two categories: those involving the roof strength and the subject vehicle's roof's propensity to crush causing head injury and those involving the seat belt system.

a. Seat belt system opinions

Generally, Ms. Padmanaban's opinions on the seat belt system are not problematic. Although she has used the same databases for this analysis as her more troublesome opinions regarding roof strength, her analysis only examines whether a different seat belt design in the subject vehicle would have properly restrained Dr. Bavlsik during a rollover accident. (Doc. 66-6 at 1.) Therefore, the varying factors at issue in Ms. Padmanaban's roof-strength opinion (number of turns, trip speed, arrested rollover, multi-vehicle rollover, etc.) are not at issue. The court finds that all of Ms. Padmanaban's opinions contained in her report dated March 13, 2015, Doc. 66-6,³ regarding the restraint systems are admissible.

b. Roof Strength opinions

Ms. Padmanaban's opinions on the roof strength of the subject vehicle as compared to other vehicles in its peer group are not admissible. She admits in her deposition that she has not controlled for several variables, which seem to indicate she is comparing

³ Defense describes these opinions as ones where, "Ms. Padmanaban will address the injury risk associated with conventional belts versus All Belts to Seats (ABTS) systems using field data on rollover crashes." (Doc. 76 at 5.)

wholly dissimilar accidents. Whether these variables can be controlled for by the database is irrelevant to the court's analysis. For example she did not separate crashes based on the number of turns completed during the rollover. Therefore, while Mr. Bavlsik's vehicle is alleged to have turned only $\frac{3}{4}$ of a full roll, Ms. Padmanaban considered accidents with multiple rolls. She also has not excluded based on trip speed, the speed of the vehicle when the rollover began. Thus, while evidence indicates that the subject vehicle was travelling 11 mph when the rollover began, Ms. Padmanaban compares it to vehicles traveling at other speeds. The court concludes that her opinions regarding the roof strength of the subject vehicle⁴ are not admissible.

⁴ The opinions to be excluded are:

2. NASS/CDS data show that for belted drivers in vans, fewer than 1% sustain serious head/face/neck injuries in rollover crashes. These rates are lower than the serious head/face/neck rates for belted drivers in passenger car rollovers. (Doc. 66-5 at 5.)
3. Police-Reported State Accident data from 14 states [AL, FL, GA, ID, IL, MD, MO, NE, NC, NY, OK, PA, TN, and WI] were examined to compare the serious injury rates (using the "KABCO police-reported scale) in rollover crashes for the subject GMC Savana Group and other vans. The data showed that the serious injury rate for belted drivers in the GMC Savana Group is low and is comparable to the serious injury rates for other vans. (Id.)
4. The serious injury rate and severe injury rate in rollover crashes for belted drivers in the GMC Savana group is comparable to the rates for belted drivers in the Volvo XC-90s and Subaru Foresters. (Id. at 6.)
6. Field data from NASS/CDS show that a belted occupant in a non-arrested rollover with an impact with another vehicle is about three times more likely to sustain serious head/face/neck injury than in a non-arrested rollover with a ground-only impact. (Id.)
7. NASS/CDS data also show that the serious injury rates from belted drivers in rollover crashes are comparable for vehicles with a roof strength to weight ratio than or equal to 4.0 for vehicles with a roof strength to weight ratio less than 4.0 (Id.)

c. Irrelevant General Opinion

Ms. Padmanaban's first opinion that, "safety belts are the most effective crashworthiness countermeasure to reduce fatalities in rollovers" (Doc. 66-5 at 5), has no relationship to the facts of this case. Both sides admit that Dr. Bavlsik was wearing a seat belt. This opinion implies that a seat belt was not worn by plaintiff and therefore he was not using the best form of protection against crash injuries, which is simply not true. The court concludes this opinion is irrelevant and, therefore, not admissible.

- 8. Several factors, including crash severity factors, influence injury outcome in rollovers. This demonstrates that rollovers are complex events and that a single parameter (such as roof strength) cannot explain the injury potential for occupants. (Id.)
- 9. There is no relationship between roof SWR and likelihood of fatality or serious injury for belted or unbelted occupants in rollovers. (Id. at 7.)
- 10. When important confounding factors are accounted for (belt use, ejection, alcohol, rural/urban, driver age), roof strength to weight ratio is not a statistically significant predictor of likelihood of fatality or serious injury in single-vehicle rollovers. (Id. at 8.)
- 11. NASS/CDS data show that there is no relationship between roof strength to weight ratio and roof deformation at position. (Id.)
- 12. Five percent of seriously injured occupants in rollovers are belted front seat occupants with serious head, face, and neck injury resulting from roof contact where roof deformation is coded at the seating position. Even for these, testing shows that the roof contact occurs before there is any significant roof deformation. (Id.)
- 13. Rollovers are complex events and that a single parameter (such as roof performance or pretensioners) cannot explain the injury potential for occupants. (Id.)

IV. MOTION TO EXCLUDE THE OPINIONS OF JOSEPH BURTON, M.D.

Dr. Burton asserts the following opinions.⁵

1. Plaintiff Bavlsik sustained in the subject accident a C6-C7 fracture/dislocation and transaction of the cord resulting in quadriplegia. (Doc. 82-14 at 5.)
2. Plaintiff Bavlsik was utilizing his available restraint and there is no evidence to indicate that he was utilizing it inappropriately. (Id. at 7.)
3. Plaintiff Bavlsik's cervical spine injuries were sustained as a result of the subject vehicle entering an intersection and striking a boat and trailer towed by a 2004 Chevrolet Silverado at a speed between 11 and 15 miles per hour. After striking the other vehicle the subject vehicle rotated counterclockwise and began rolling down an embankment, passenger-side first. The subject vehicle rolled $\frac{3}{4}$ times and came to a rest on the driver's side. (Id. at 8-9.)
4. During the frontal impact plaintiff would have remained seated, but as the vehicle rotated toward the passenger side, he would tend to move forward and to the right. During the first $\frac{1}{4}$ roll plaintiff would have tended to move right, but likely stayed seated. (Id. at 9.)
5. As the vehicle inverted, plaintiff Bavlsik's seat belt would have locked up, but, as a body-mounted system, it would not have prevent his head from contacting the roof. (Id.)
6. During the rollover the driver's side roof rails and structures deformed inward and downward, intruding into the driver's side approximately 4 1/3 inches in the Z-axis and 3 1/2 inches in the Y-axis. This intrusion would put an axial and lateral bending load on plaintiff Bavlsik's head resulting in his cervical spine injuries. (Id.)
7. Plaintiff Bavlsik would come to rest in the position dictated by gravity and the vehicle's position. He would have to be extricated from the vehicle. (Id.)

⁵ Opinions 3-6 are summaries of Dr. Burton's statements. (Doc. 82-14 at 8-9.)

8. Roof crush, which occurred to the subject vehicle, is proximally related to the occurrence of plaintiff Bavlisk's cervical spine injuries resulting in quadriplegia. (Id. at 12.)
9. If plaintiff Bavlisk's occupant space had been adequately preserved his injuries would have been significantly mitigated. (Id. at 15.)
(Id. at 5–15.)

Defendant moves to exclude any testimony or evidence regarding Dr. Burton's opinion regarding the mechanism by which plaintiff Bavlisk's cervical spinal column injury occurred. This would appear to include opinions 5, 6, 8, and 9. Defendant argues that Dr. Burton's opinion is not based on reliable test results, data, objective methodology, or scientific protocol. (Doc. 71-1 at 11.)

Plaintiffs counter that Dr. Burton is qualified to opine on the mechanism of Dr. Bavlisk's spine injury. Plaintiffs also argue Dr. Burton's opinions are supported by peer reviewed literature, as well as his own experience. Finally, plaintiffs argue that his opinions are widely accepted by the independent scientific community. (Doc. 82)

A. Dr. Burton's Qualifications & the Assistance to the Jury

Dr. Burton's qualifications as an expert in the field of biomechanics has not been substantially questioned by defendant. (See generally Doc 71-1.) Dr. Burton is a forensic pathologist and a licensed medical doctor in the state of Georgia. (Doc. 82-9 at 1.) He has been a State Medical Examiner in Atlanta, Georgia since 1974. (Id.) Dr. Burton has also consulted on over 1,270 rollover cases. (Id.) He has also been a consultant for the National Transportation Safety Board and NHTSA. (Id. at 2.) Dr. Burton is qualified to testify as an expert in biomechanics.

The court also holds that testimony explaining plaintiffs' theory on how Dr. Bavlisk's cervical spine would assist the jury in determining an ultimate issue.

B. Reliable and Trustworthy Evidence

Finally, the evidence to be presented by a qualified expert must be found reliable and trustworthy by the court. Fed. R. Evid. 702; Kumho Tire, 523 U.S. at 141; White Horse, 316 F.3d at 775. This reliability is based off of the expert applying sufficient facts and data, which were gathered using reliable principles and methods, to the case at bar. Fed. R. Evid. 702.

1. Reliable Principles and Methods

The data used must be gathered using reliable principles and methods. Id. A court may assess the reliability of the expert's methodology using four nonexclusive factors: "(1) whether the theory or technique 'can be (and has been) tested;' (2) 'whether the theory or technique has been subjected to the peer review and publication'" (3) 'the known or potential rate of error'; (4) whether the theory has been generally accepted." Shuck, 498 F.3d at 874 (quoting Daubert, 509 U.S. at 593–94).

Dr. Burton conducted his own inspection of the subject vehicle and then received the measurements from the defendant's experts. (Doc. 82-14 at App'x A.) He used the state of Minnesota's reconstruction data in his analysis of the accident's effect on Dr. Bavlsik. (See generally Doc. 82-14.) He used Dr. Bavlsik's medical records as well. (Id. at 5-6.) Furthermore, he has used both his own knowledge as well as peer-reviewed scholarly literature. Dr. Burton has used reliable principles and methods in formulating his opinions.

2. Application to this Case

Dr. Burton took the evidence and applied it to the accident at hand: a ¾ rollover of Dr. Burton which involved roof crush and a restraint system that allowed his head to come into contact with the roof of the subject vehicle. (Doc. 82-14 at 8.) Dr. Burton has used the charts created by both GM and Ford which illustrated the pressure increase on a head during both the roof's initial ground contact and the subsequent crushing of the roof.

(Doc. 82-14 at 14; Doc. 82-15 at 257.) Dr. Burton uses this data to hypothesize that the crush on Dr. Bavlsik's spinal column was caused by his body being pinned between the crushing roof and the seat. This hypothesis is not novel as defendant suggests and plaintiffs have provided several studies that support Dr. Burton's theory. (Doc. 82 at 2 n.1) (citing sources). The matters raised by defendant can be addressed by the defendant's expert witness as well as cross examination of Dr. Burton by defendant.

The court finds that plaintiffs have shown that Dr. Burton's will be able to assist the jury as a qualified expert. His opinions are supported by reliable opinions based on sufficient data which has been applied to this case.

V. MOTION TO EXCLUDE THE OPINIONS OF LARRY SICHER

Mr. Sicher asserts the following opinions:

1. On July 7, 2012, Dr. Michael Bavlsik was the properly restrained driver of the subject 2003 GMC van. (Doc. 81-3 at 17.)
2. Dr. Bavlsik was driving his 2003 GMC van on SAH 37 at the intersection with MNTN 113 in Lake Township. (Id.)
3. The GMC van initially frontally impacted a boat/trailer combination, resulting in a frontal airbag deployment and then yawed counter-clockwise before rolling $\frac{3}{4}$ of a revolution. At the end of the $\frac{3}{4}$ roll, the van came to rest on its driver's side. There were ten passengers in the van. (Id.)
4. Had the vehicle been equipped with a typical pretensioner device, it would have deployed when the frontal airbags deployed. (Id.)
5. Defense experts all opine that the subject restraint system allowed Dr. Bavlsik's head to be in contact with the roof structures initially above him before the roof of the van impacted the ground despite his initial 4 inches of clearance. This is known to put an occupant at significant risk of a head and/or neck injury. But, restraint systems exist that would not have allowed for this initial excursion. The Subject GMC van is defective and unreasonably dangerous, because the left front occupant restraint system does not adequately control

driver excursions during foreseeable and survivable rollover events. (Id.)

6. Dr. Bavlsik sustained his paralyzing injuries because of the defective driver's occupant protection system. This seat belt system failed to prevent excessive excursions of Dr. Bavlsik during the July 7, 2012 rollover event. (Id.)
7. Technological and economical alternative designs existed at the time that the subject 2003 GMC van was manufactured. Many of the alternatives were implemented in other vehicles, including some GMC models. These design features included seat belt anchors mounted to the seat (ABTS), a pretensioner and/or a cinching type of latchplate. This alternative restraint system would have protected Dr. Bavlsik during the July 7, 2012 rollover event. (Id.)
8. By 2003, multiple vehicles incorporated ABTS designs, pretensioners, and/or cinching latchplates. It was technologically and economically feasible for GMC to have included such a design in the left front position of the 2003 GMC van. (Id.)
9. GMC's failure to optimize the rollover crash protection provided in the 2003 GMC van, which has a very high propensity for rollover, was grossly negligent. (Id.)
10. Defense experts conducted drop tests at a drop height that was significantly higher than that typically used within the industry and at a height that greatly exaggerated the subject event. This testing oriented the vehicle in a manner that resulted in a ground impact substantially different than the ground impact during the subject crash. As a result, the defense's tests provide no insight into the issues of this case and will mislead the jury. (Id.)

(Doc. 81-3.)

Defendant moves to exclude the testimony and evidence regarding three opinions of plaintiffs' expert Larry Sicher.

1. Alternative seat belt design theories as applied to this crash;

2. Inversion and drop testing upon which [Mr. Sicher] relies to support his opinions concerning alternative seat belt designs and/or the performance of the driver's seat belt in the subject vehicle;
3. Any opinions concerning the efficacy or availability of a rollover sensor for the subject vehicle.

(Doc. 84 at 1.)⁶

Defendant makes several arguments as to why Mr. Sicher's opinions should be excluded. First, defendant argues that Mr. Sicher is not qualified to testify about these subjects. (Doc. 72-1 at 3–4.) Next, defendant purports that the testing Mr. Sicher performed is inapplicable to the facts in the case before the court. (Id. at 6–10.) Finally, defendant argues the tests regarding his alternative designs are not supported with valid data, test results, scientific protocol, or objective methodology. (Id. at 11–12.)

Plaintiffs counter that Mr. Sicher is qualified both through his education and experience. (Doc. 81 at 4.) Mr. Sicher's opinions are grounded in peer review literature and testing other than his own and have been applied to the facts and circumstances of this case. (Id. at 5–10.) Finally, Mr. Sicher's own tests are reliable, repeatable and universally accepted. (Id. at 10–15.)

A. Assistance to the Jury

The court finds that an expert's testimony on the safety of the restraint system in the subject vehicle, as well as the possibility of alternative designs are topics that would assist the jury in determining an ultimate issue.

B. Mr. Sicher's Qualifications

General Motors challenges Mr. Sicher's qualifications by saying he has only completed "some graduate course in math computations, only two of which he could

⁶ These appear to be 5–10 of Mr. Sicher's opinions.

remember.” (Doc. 72-1 at 3.) Defendant also says Mr. Sicher has “some involvement in government contract work” but “none of his government work has ever resulted in improvements to motor vehicles driven by the motoring public.” (Id. at 4.) Finally, defendant states that all Mr. Sicher has done is “litigation cases on the plaintiffs’ side of cases.” (Id.)

Mr. Sicher has an engineering degree from Pennsylvania State University and began working in the engineering field designing ejection seats for fighter pilots at the Naval Air Development Center (now known as the Naval Air Warfare Center). (Doc. 81-1 at 1.) His design for the Army’s High Mobility Multipurpose Wheeled Vehicle (HMMWV) was published in three separate scholarly articles. (Id. at 2.) This design was patented by Mr. Sicher and installed in the Army’s Mine Resistant Ambush Protected (MRAP) vehicles. (Id.) He also authored over twenty publications related to occupant crash protection, including seat belt pretensioners, vertical occupant excursion, and occupant protection during rollover events. (Id. at 3.) The court finds that Mr. Sicher is qualified to testify as an expert on the use and benefit of different restraint designs in passenger cars.

C. Reliable and Trustworthy Evidence

The evidence to be presented by a qualified expert must be found reliable and trustworthy by the court. Fed. R. Evid. 702; Kumho Tire, 523 U.S. at 141; White Horse, 316 F.3d at 775. This reliability depends on the expert applying sufficient facts and data, which were gathered using reliable principles and methods, to the case at bar. Fed. R. Evid. 702.

1. Sufficient Facts and Data & Reliable Principles and Methods

Defendant has not challenged Mr. Sicher’s opinions as unreliable because the facts or data used were insufficient; rather, defendant states that Mr. Sicher has not supported his opinions with reliable testing. Mr. Sicher has used a significant amount of peer-

reviewed literature and testing, his own and others, to support the opinions asserted here. In his report he has cited to the literature and multiple studies he used to come to his opinions. The court finds it meets the at least three of the four Daubert factors for reliability: 1) it has been tested; 2) it has been peer reviewed and published; 3) general acceptance within the relevant scientific community. See Daubert, 509 U.S. at 592–94.⁷ Additionally, his company has conducted testing of its own regarding restraint systems different from the one in the subject vehicle under rollover circumstances. (Doc. 81 at 11 n. 24, 28, 29, 30, 31.)

2. Application to this Case

Defense contends that Mr. Sicher did not apply his research to the facts of this case. On the contrary, Mr. Sicher testified in his deposition that he used the defense's determinations regarding the subject vehicle's orientation when Dr. Bavlsik was injured. (Sicher Dep. at 184:15–25.) Mr. Sicher also used the defense's theory of the biomechanics of Dr. Bavlsik as the roll occurred. (Sicher Dep. at 38:23–24, 40:5–6, 42:12–13.) He then used this data and applied it to the known capabilities of various restraint systems, including the one in the subject vehicle. (Doc. 81 at 11–13.)

The court finds that plaintiffs have shown that Mr. Sicher's opinions will be able to assist the jury as a qualified expert. His opinions are supported by reliable opinions based on sufficient data which has been applied to this case.

Therefore,

⁷ In Mr. Sicher's analysis of a better restraint system than the one found in the subject vehicle he used: Benda, B.J., et al. (2006). Performance of Automotive Seat Belts During Inverted (-Gz) Rollover Drop Tests. Icrash 2006—International Crashworthiness Conference, Athens, Greece, University of Bolton; Bahling, G., et al. (1990). Rollover and Drop Tests – The Influence of Roof Strength on Injury Mechanics Using Belted Dummies (SAE 902314). Warrendale, PA: Society of Automotive Engineers (“Malibu 2” test); Pywell, J., et. al. (1997). “Characterization of Belt Restraint Systems in Quasistatic Vehicle Rollover Tests”, (SAE 973334). Warrendale, PA: Society of Automotive Engineers. These are only three of the twenty-three papers and presentations Mr. Sicher uses in his report.

IT IS HEREBY ORDERED that plaintiffs' motion (Doc. 65) to exclude the testimony of defendant's expert Jeya Padmanaban is sustained in part and denied in part.

IT IS FURTHER ORDERED that defendant's motion (Doc. 71) to exclude the testimony of plaintiffs' expert Joseph Burton, M.D., is denied.

IT IS FURTHER ORDERED that defendant's motion (Doc. 72) to exclude the testimony of plaintiffs' expert Larry Sicher is denied.

/S/ David D. Noce

UNITED STATES MAGISTRATE JUDGE

Signed on August 18, 2015.